

CLAIM

1. A process for preparing a phenol-modified
rosin ester, the process comprising the step of reacting
rosin with phenol, formaldehyde and polyhydric alcohol,
5 the process being characterized in that rosin or a
polyhydric alcohol ester of rosin is reacted with a resol
phenol resin prepared in the presence of a volatile base
catalyst.

10 2. The process according to claim 1, wherein the
resol phenol resin is one prepared by reacting phenol with
formaldehyde at 80 to 200°C.

15 3. The process according to claim 1, wherein the
resol phenol resin is one prepared by reacting phenol with
formaldehyde in a closed reactor under an increased
pressure.

20 4. The process according to claim 1, wherein the
volatile base catalyst in the resol phenol resin is amine.

5. The process according to claim 1, wherein the
resol phenol resin is one prepared by reacting 1 mole of
phenol with 0.5 to 3 moles of formaldehyde.

6. The process according to claim 1, wherein the rosin is at least one species selected from the group consisting of gum rosin, wood rosin, tall oil rosin, distilled rosin, hydrogenated rosin, polymerized rosin and
5 disproportionated rosin.

7. The process according to claim 1, wherein the phenol-modified rosin ester is one prepared by reacting rosin with a resol phenol resin, and reacting the reaction
10 mixture with polyhydric alcohol.

8. The process according to claim 1, wherein the phenol-modified rosin ester is one prepared by reacting rosin with polyhydric alcohol to give a polyhydric alcohol
15 ester of rosin, and reacting the same with a resol phenol resin.

9. The process according to claim 1, wherein the rosin or polyhydric alcohol ester of rosin is reacted with
20 the resol phenol resin at 180 to 270°C.

10. A phenol-modified rosin ester prepared by the process as defined in claim 1.

25 11. The phenol-modified rosin ester according to

claim 10 which has an acid value of 10 to 40 mg KOH/g.

12. The phenol^{PR}-modified rosin ester according to claim 10 which has a weight average molecular weight of 10,000 to 500,000 as calibrated with polystyrene standard samples.

13. The phenol-modified rosin ester according to claim 10 which has a softening point (ring and ball method) of 140 to 190°C.

14. The phenol-modified rosin ester according to claim 10, wherein the nitrogen residue content resulting from the volatile base catalyst (measured by microanalysis of total nitrogen by a catalyst oxidation conversion method) is 10 to 1,000 ppm.

15. The phenol-modified rosin ester according to claim 10 which has a solubility in a petroleum hydrocarbon solvent (boiling point 276 to 313°C, aniline point 69°C) in the range of at least 2 times.

16. A binder for printing inks which contains the phenol-modified rosin ester of claim 10.

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17. A printing ink containing the binder for printing inks as defined in claim 16.

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